

CASE 1831 D.FDI

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF

GROUP ART UNIT: 1761

HANCHETT, ET AL.

EXAMINER: ARTHUR L CORBIN

S.N. 10/053,926

FILED: 22 JANUARY 2002

FOR: SAGO FLUIDITY STARCH AND USE THEREOF

Commissioner of Patents and Trademarks

P.O. Box 1450

Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

Applicants appeal the Advisory Action dated 24 March, 2005 in the above-identified application. A Notice of Appeal was filed 14 March, 2005 making this Appeal Brief due 14 May, 2005.

i. Real Party in Interest

National Starch and Chemical Investment Holding Corporation, the assignee, is the real party in interest.

ii. Related Appeals and Interferences

There is currently no related appeal or interference pending in the United States Patent and Trademark Office.

iii. Status of Claims

Claims 1-18 were originally filed in parent application dated 10 August, 1999. This application is a divisional of such parent application, filed on 22 January, 2002 with claims 1-18. Claim 9 was rewritten in Independent form, claims 1-8 and 18 were cancelled and new claims 19-27 were added in a preliminary amendment. Claims 9-17 and 19-27 remain in the application as pending and rejected.

Claims 9-17 and 19-27 are under appeal. The claims as currently pending are listed in Section viii, Claims Appendix.

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iv. Status of Amendments

The Amendment After Final dated 14 March, 2005 has been considered and entered for purposes of the Appeal.

v. Summary of Claimed Subject Matter

This application pertains to a composition comprising sago fluidity starch and water, the sago fluidity starch having a water fluidity of from about 40 to about 80 (claim 1) and the method of increasing gel strength by addition of such starch (claim 19). It is known that starch may be used to add texture to products, such as gum confections, by providing a firm gel and short texture (page 1, lines 3-7). However, the conventional starch mold casting process for producing gums has the disadvantage of a long processing time in order to obtain the gel strength and integrity organoleptically desirable as well as necessary for handling and packaging (page 2, lines 1-3). This problem has been overcome with the present invention which discovered that sago starches with a certain water fluidity (about 40-80) exhibit exceptionally fast gelling properties, unexpectedly high gel strengths and exceptional elasticity (page 2, lines 4-6). Thus, compositions using fluidity sago starches have superior gelling properties.

vi. Grounds of Rejection

- a) Claims 9 and 19 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Eden, et al. (US 4,874,628).
- b) Claims 10-15 and 20-25 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Eden, et al. (US 4,874,628).
- c) Claims 16, 17, 26 and 27 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Eden, et al. (US 4,874,628) in view of Jeffcoat, et al. (US 6,488,980), Park (US 4,784,871) or Yuan (US 6,017,388).

vii. Argument

a.1. Claim 9 has been rejected under 35 U.S.C. § 102(b) as being anticipated by Eden, et al (US 4,874,628).

Claim 9 claims a composition comprising a sago starch with a water fluidity (WF) of from about 40 to 80, and water. As Eden does not disclose a sago starch with a WF of from 40 to 80, it is Applicants belief that this is an improper rejection under 35 U.S.C. § 102(b) in that not each and every claim limitation is present in Eden. However, the rejection will still be addressed and the reference considered with respect to obviousness.

Sago starch which has been converted to the claimed WF is patentable in that it unexpectedly gels to form a strong gel, compared to other bases which have been similarly converted. See Figures 1 and 2 of the present application which compare gel strength of fluidity starches of different bases at a variety of WF values. Sago starch which has been converted to the claimed WF is also patentable in that it gels more quickly compared to other bases which have been

similarly converted. See for example figures 3-5 of the present application which compare gelling time, as indicated by an increase in viscosity, of fluidity starches of different bases at a variety of WE values.

Eden discloses a process of making gum confections by using high amylose starch alone or in combination with up to about 9 parts of a converted (fluidity) starch, a sweetener and water (Eden, col. 2, lines 51-60). The converted starches used in combination with the high amylose starches are chosen from starch bases other than high amylose starches, such as corn, potato, sweet potato, rice, sago, tapioca, waxy maize, sorghum, and the like (Eden, col. 6, lines 45-49). Acid hydrolyzed or oxidized corn, sorghum, and wheat starches are preferably used, with acid-hydrolyzed corn starch being the most preferred (Eden, col. 6, lines 51-56). Eden has ten examples, many with numerous compositions disclosed. However, none use a fluidity sago starch.

Thus, it is clear that not only does Eden not recognize that sago is superior to the other sources, but Eden teaches away from sago by stating that corn, sorghum and wheat are preferable, with corn the most preferable. As can be seen from the present invention, sago gel is up to more than eight times stronger than corn gel (see Figure 1 at a WF of 60) and gells significantly faster (see Figure 4).

Further, Eden never specifies the WF range of from 40-80 and never specifies any WF range in connection with sago or starch in general. The only mention of water fluidity is in the examples. In the examples, a 65 WF corn starch is mixed in with the high amylose starch, but as can be seen from the figures of the present application, corn starch with a WF in this range does not form a strong gel as would a similarly converted sago starch. Further, as can be seen from Examples VII and VIIII of Eden, the high amylose starch gives the gelling property to the confectionary dispersion, not the unconverted corn starch. In Example VII, it is shown that the pregelatinized high amylose confection had a gel strength of 361 g/mc². In contrast, Table V of Example VIII shows that a 65 WF corn starch confection had a gel strength of only 47 g/cm². The importance of the high amylose starch in providing the gelling property is also stated in the background of Eden (col. 2, lines 35-36).

The Examiner argues that Eden teaches the currently claimed WF values in the table at the bottom of page 8. It should be noted that the table is part of the methodology for determining water fluidity. Specifically, the table shows how to convert viscosity to fluidity numbers from a water fluidity of 10 to 85, and does not disclose specific water fluidities useful in Eden's invention.

The Examiner also states that gel strength is inherently increased in Eden as a result of using the sago starch disclosed therein, which is a viable alternative to the corn starch. However, as detailed above, Eden not only does not recognize the superiority of sago starch, but he teaches away from using sago starch and does not actually try sago starch. Thus, at best, Eden gives only general guidance and is not at all specific as to the particular form of the claimed invention. Eden discloses numerous compounds. First he discloses starch in general, listing eight specific starches. Second, he implies that any degree of conversion may be used. A disclosure of such a

multitude of compounds would not render obvious a claim limited to simply a few, particularly when such disclosure indicates a preference leading away from the claimed compounds. Thus, it is clear that claim 9 is novel and unobvious over Eden.

a.2. Claim 19 has been rejected under 35 U.S.C. § 102(b) as being anticipated by Eden, et al (US 4,874,628).

The arguments made above under a.1. also apply to claim 19 which pertains to a method for increasing the gel strength of a composition by adding a sago starch with a fluidity of about 40-80. Further, Eden does not increase the gel strength of the composition by the addition of a fluidity sago starch. Eden makes it quite clear that his invention is the use of specific high amylose starches to make gum confections. Eden does not increase the gel strength of a composition by the addition of a fluidity sago starch, but by addition of a high amylose starch. Not only is it well known in the art that high amylose starches provide the gel strength for jelly gum confectionaries, but it is clear from the application as the high amylose starch is a necessary ingredient and the fluidity starch is merely an optional ingredient. (see for example Eden's abstract). This is further evidenced by Example VII, in which the high amylose starch alone gives the gelling property to the confectionary dispersion and in Example VIII in which it is shown that the fluidity corn starch gives an undesirably low gel strength. Thus, it is clear that claim 19 is novel and unobvious over Eden.

b.1. Claims 10-15 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Eden, et al. (US 4,874,628).

The arguments above under a.1. also apply to claims 10-15. Sago starch with a water fluidity of about 40-80 is clearly shown to be unexpectedly superior in both gel strength and gelling time to other fluidity starches, particularly the corn fluidity starches of Eden. Thus, it is clear that claims 10-15 are unobvious in view of Eden.

b.2. Claims 20-25 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Eden, et al. (US 4,874,628).

The arguments above under a.2. also apply to claims 20-25. The addition of sago starches with water fluidities of about 40-80 is clearly shown to unexpectedly add superior gel strength in comparison to the addition of other fluidity starches, particularly the corn fluidity starches of Eden. Thus, it is clear that claims 20-25 are unobvious in view of Eden.

c.1. Claims 16 and 17 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Eden, et al. (US 4,874,628) in view of Jeffcoat, et al. (US 6,488,980), Park (US 4,784,871) or Yuan (US 6,017,388).

The arguments above under a.1. and b.1. also apply to claims 16 and 17. Sago starch with a water fluidity of about 40-80 is clearly shown to be unexpectedly superior in both gel strength and gelling time to other fluidity starches, particularly the corn fluidity starches of Eden.

The addition of Jeffcoat, Park or Yuan does not remedy the deficiencies of Eden. Jeffcoat discloses stabilized or stabilized crosslinked waxy potato starches as thickeners for food compositions (Jeffcoat, abstract). Jeffcoat does not teach sago starches, much less sago starches with a water fluidity of about 40-80.

Park discloses a method of making a calcium fortified yogurt in which stabilizers and thickeners such as starch may be added (Park, col. 2, lines 20-22). Starch may also be added as past of the fruit flavoring (Park, col. 2, lines 54-56). Park neither discloses that the starch may be sago, nor that it may have a fluidity in the range of about 40-80.

Yuan discloses heating a starch in the presence of an emulsifer to form a complex which can be used in food products. The starch used can be native or debranched and "debranched or partially hydrolyzed amylomaize can be used, as well as common cornstarch, potato, tapioca, wheat, smooth pea, rice, sago, barley and oat starches." (Yuan, col. 3, lines 36-39 and 53-56). Yuan mentions sago as one of many base starches which may be used and never provides a range of water fluidities, in fact stating that native (unconverted) starch is preferred when making a gelled composition (Yuan, col. 2, lines 27-29).

The Examiner cites these references to show that it is conventional to thicken yogurt with starch, stating that it "would have been obvious to use the sago starch in Eden, et al. as a thickener for yogurt since it is conventional to thicken yogurt with starch," as evidenced by the other references. However, Eden does not use the same sago starch claimed by applicant, nor suggests that his starches are useful in any application other than gum confections. As none of the other references cited remedy this deficiency by suggesting the starch of the present invention, this rejection has been overcome. Thus, it is clear that claims 16 and 17 are unobvious over Eden in view of Jeffcoat, Park, or Yuan.

c.2. Claims 26 and 27 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Eden, et al. (US 4,874,628) in view of Jeffcoat, et al. (US 6,488,980), Park (US 4,784,871) or Yuan (US 6,017,388).

The arguments above under a.2., b.2. and c.1. also apply to claims 26 and 27. The addition of sago starches with water fluidities of about 40-80 is clearly shown to unexpectedly add superior gel strength in comparison to the addition of other fluidity starches, particularly the corn fluidity starches of Eden.

Jeffcoat teaches away from adding his starches to increase the gel strength, stating that the configuration of amylopectin starches (those of his invention) "discourages reassociation so that gelling does not readily occur." (Jeffcoat, col. 1, lines 39-41).

Park never mentions gelling.

Yuan teaches that the starch-emulsifier composition may be in the form of a gel. However, Yuan specifically teaches away from the using the fluidity sago starch in that he states the use of an unconverted starch produces a better gel than using a hydrolyzed starch (Yuan, col. 2, lines 27-29).

As previously stated, Eden does not add the same sago starch claimed by applicant, nor suggests that his starches are useful for gelling any application other than gum confections. As none of the other references cited remedy this deficiency by suggesting the starch of the present invention, this rejection has been overcome. Thus, it is clear that claims 26 and 27 are unobvious over Eden in view of Jeffcoat, Park, or Yuan.

viii. Claims Appendix

- 1. (Canceled)
- 2. (Canceled)
- 3. (Canceled)
- 4. (Canceled)
- 5. (Canceled)
- 6. (Canceled)
- (Canceled)
- 8. (Canceled)
- 9. (Previously presented) A composition comprising a sago starch having a water fluidity of from about 40 to about 80 and water.
- 10. (Original) The composition of claim 9 having at least about the same gel strength as a composition comprising 30% more of a comparable WF corn starch.
- 11. (Original) The composition of claim 9 having at least about the same gel strength as a composition comprising 50% more of a comparable WF corn starch.
- 12. (Original) The composition of claim 9 having at least about the same gel strength as a composition comprising 100% more of a comparable WF corn starch.
- 13. (Original) The composition of claim 9 having a gel strength which is about 100% greater than a composition comprising a comparable WF corn fluidity starch.
- 14. (Original) The composition of claim 9 having a gel strength which is about 200% greater than a composition comprising a comparable WF corn fluidity starch.
- 15. (Original) The composition of claim 9 having a get strength which is about 250% greater than a composition comprising a comparable WF corn fluidity starch.
- 16. (Original) The composition of claim 9, wherein the composition is selected from the group consisting of food products, personal care products, pharmaceuticals, nutraceuticals, paper products, agricultural products, paints, paper board products, gypsum board products, and textile warp sizings.
- 17. (Original) The composition of claim 9, wherein the composition is selected from the group consisting of confectioneries, noodles, puddings, custards, flans, fillings, imitation cheeses, cheese products, toppings, icings, imitation fish, imitation poultry, imitation meat, starch balls, yogurts, spreads, gelled desserts, jellies, and egg products.
- 18. (Canceled)
- 19. (Previously presented) A method for increasing the gel strength of a composition comprising adding sago starch having a water fluidity of from about 40 to about 80 to the composition.

- 20. (Previously presented) The method of claim 19 wherein the composition has at least about the same gel strength as a composition comprising 30% more of a comparable WF corn starch.
- 21. (Previously presented) The method of claim 19 wherein the composition has about the same gel strength as a composition comprising 50% more of a comparable WF corn starch.
- 22. (Previously presented) The method of claim 19 wherein the composition has at least about the same gel strength as a composition comprising 100% more of a comparable WF com starch.
- 23. (Previously presented) The method of claim 19 wherein the composition has a gel strength which is about 100% greater than a composition comprising a comparable WF corn fluidity starch.
- 24. (Previously presented) The method of claim 19 wherein the composition has a gel strength which is about 200% greater than a composition comprising a comparable WF corn fluidity starch.
- 25. (Previously presented) The method of claim 19 wherein the composition has a gel strength which is about 250% greater than a composition comprising a comparable WF corn fluidity starch.
- 26. (Previously presented) The method of claim 19 wherein the composition is selected from the group consisting of food products, personal care products, pharmaceuticals, nutraceuticals, paper products, agricultural products, paints, paper board products, gypsum board products, and textile warp sizings.
- 27. (Previously presented) The method of claim 19, wherein the composition is selected from the group consisting of confectioneries, noodles, puddings, custards, flans, fillings, imitation cheeses, cheese products, toppings, icings, imitation fish, imitation poultry, imitation meat, starch balls, yogurts, spreads, gelled desserts, jellies, and egg products.

For the foregoing reasons, the Honorable Board is respectfully requested to reverse the Examiner's rejection of claims 9 and 19 under 35 U.S.C. § 102(b) and of claims 10-17 and 20-27 under 35 U.S.C. § 103(a), and to direct the Examiner to pass the present application to issuance.

Respectfully submitted.

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